Nokia Customer Care

6(a) - Baseband Troubleshooting Instructions

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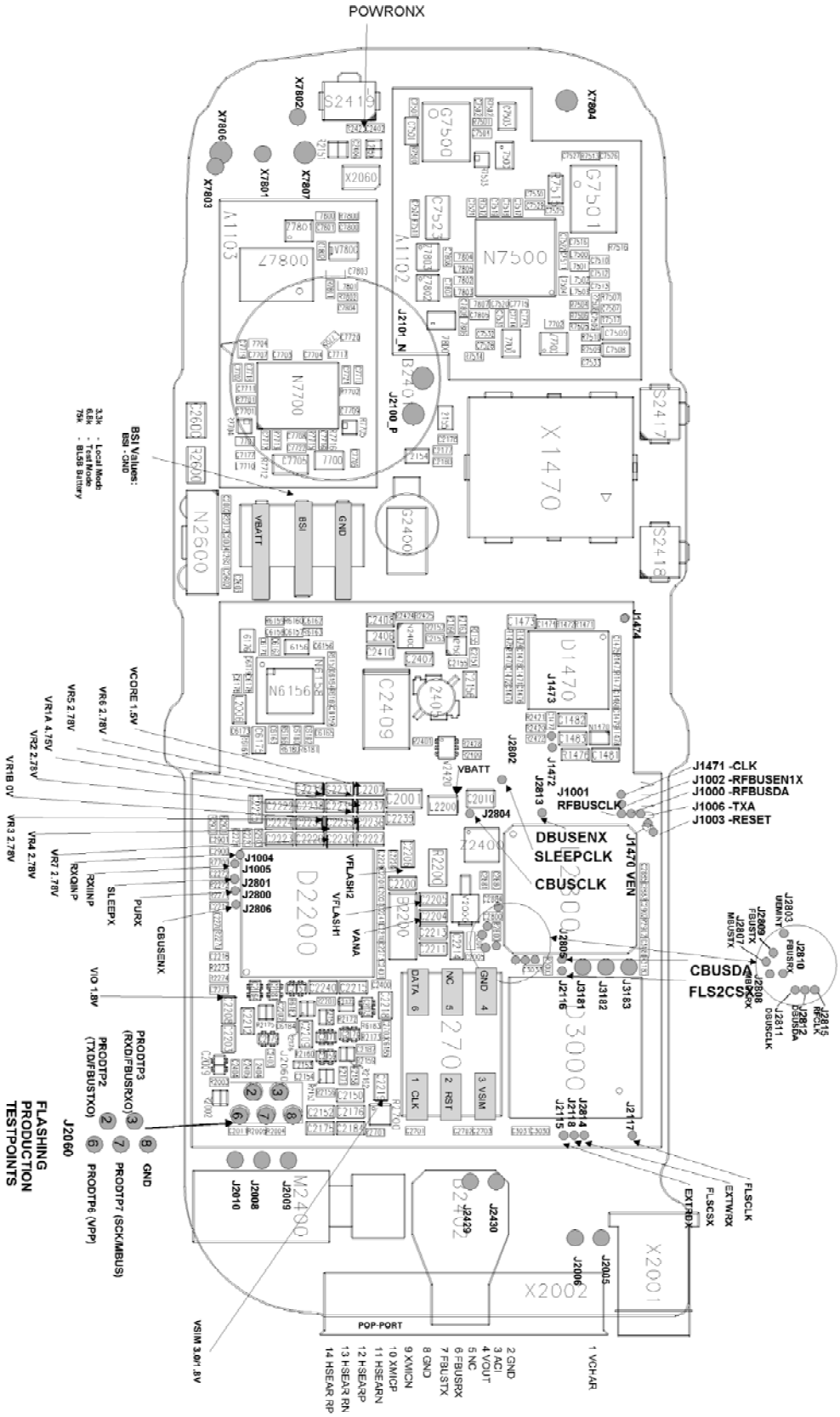
Test Points



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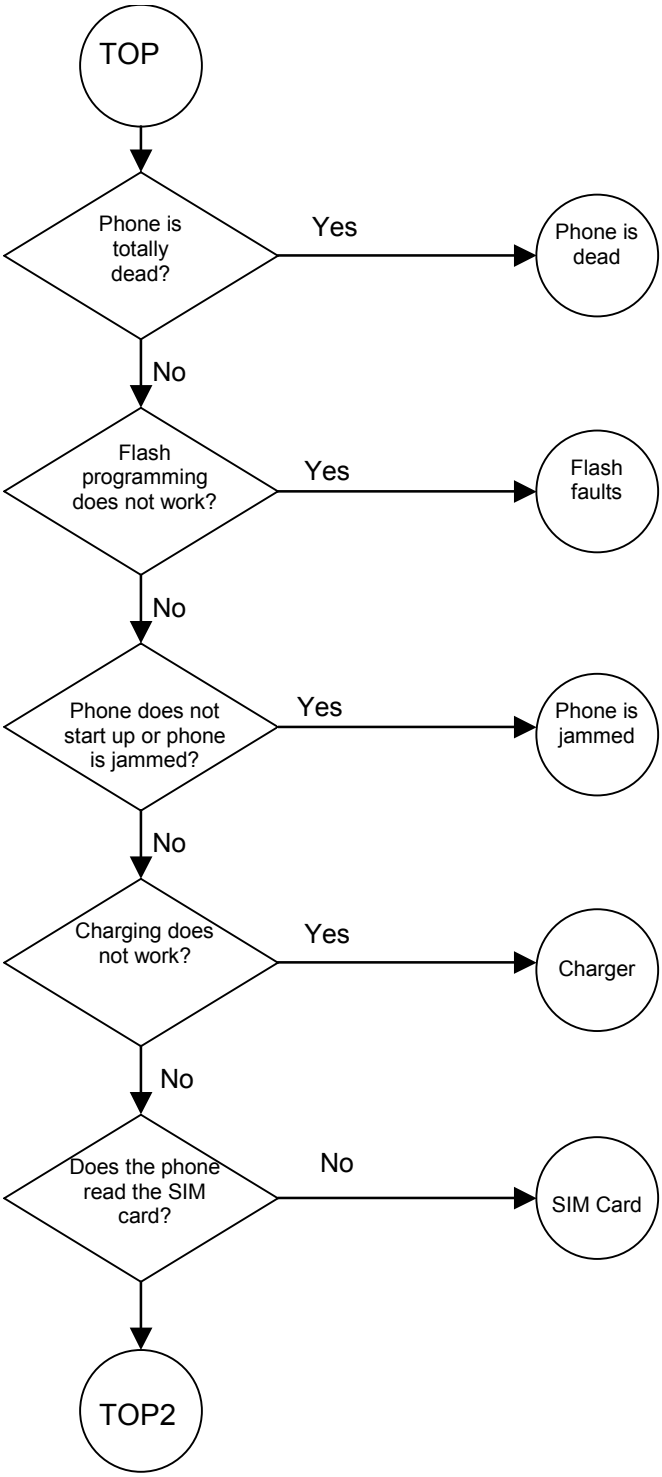
Troubleshooting

Top level flow 1



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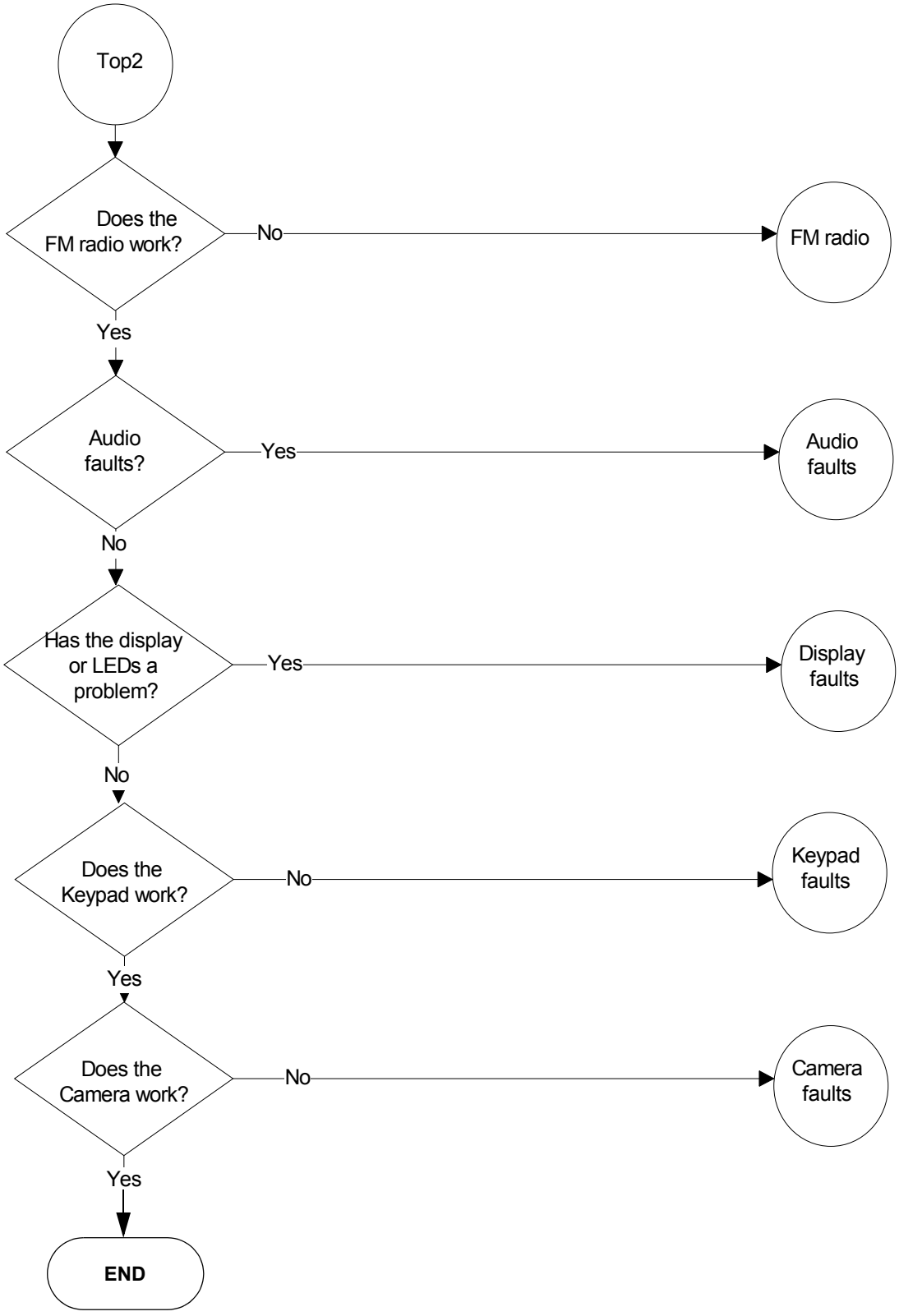
Top level flow 2



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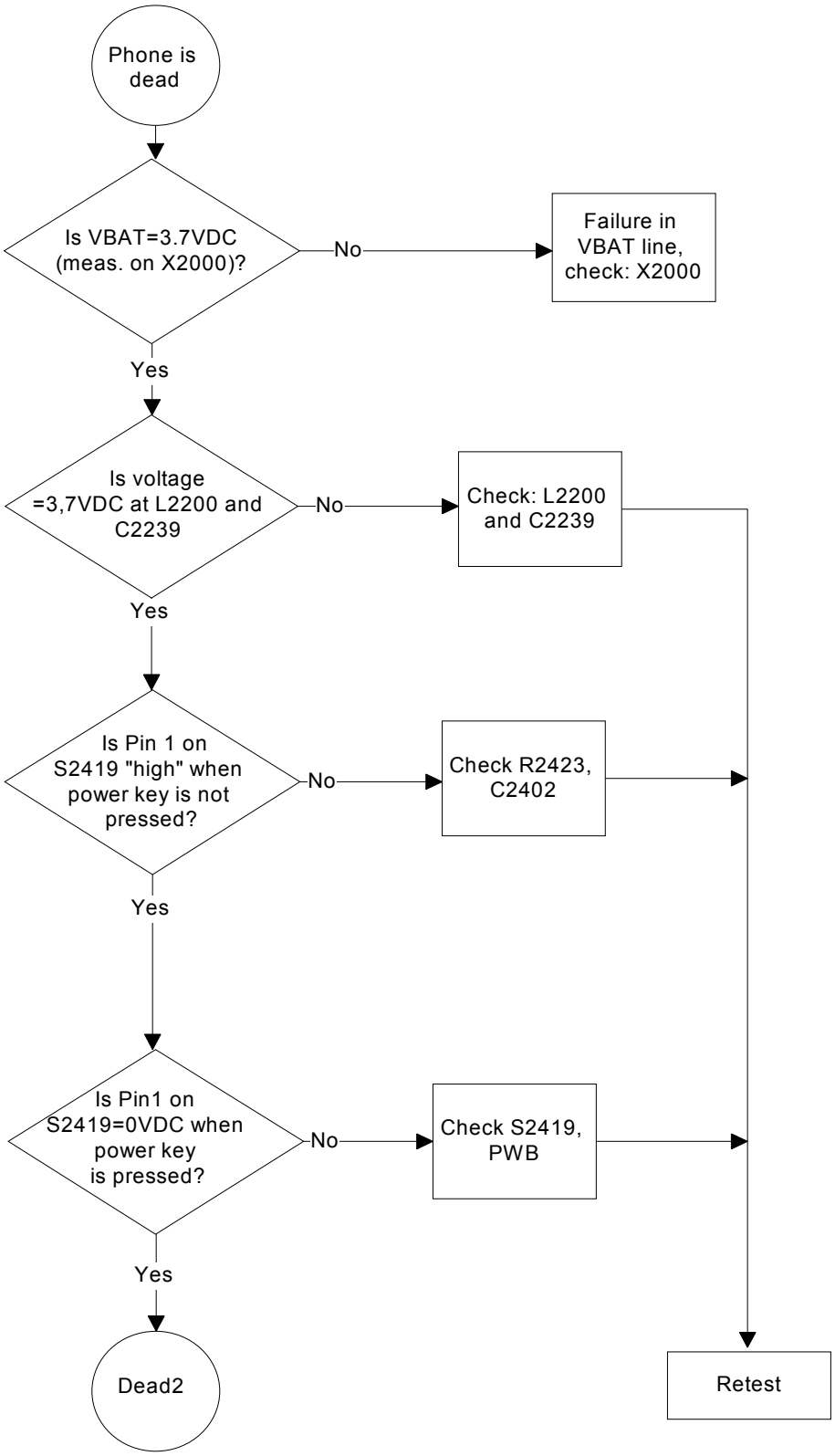
Phone is dead 1



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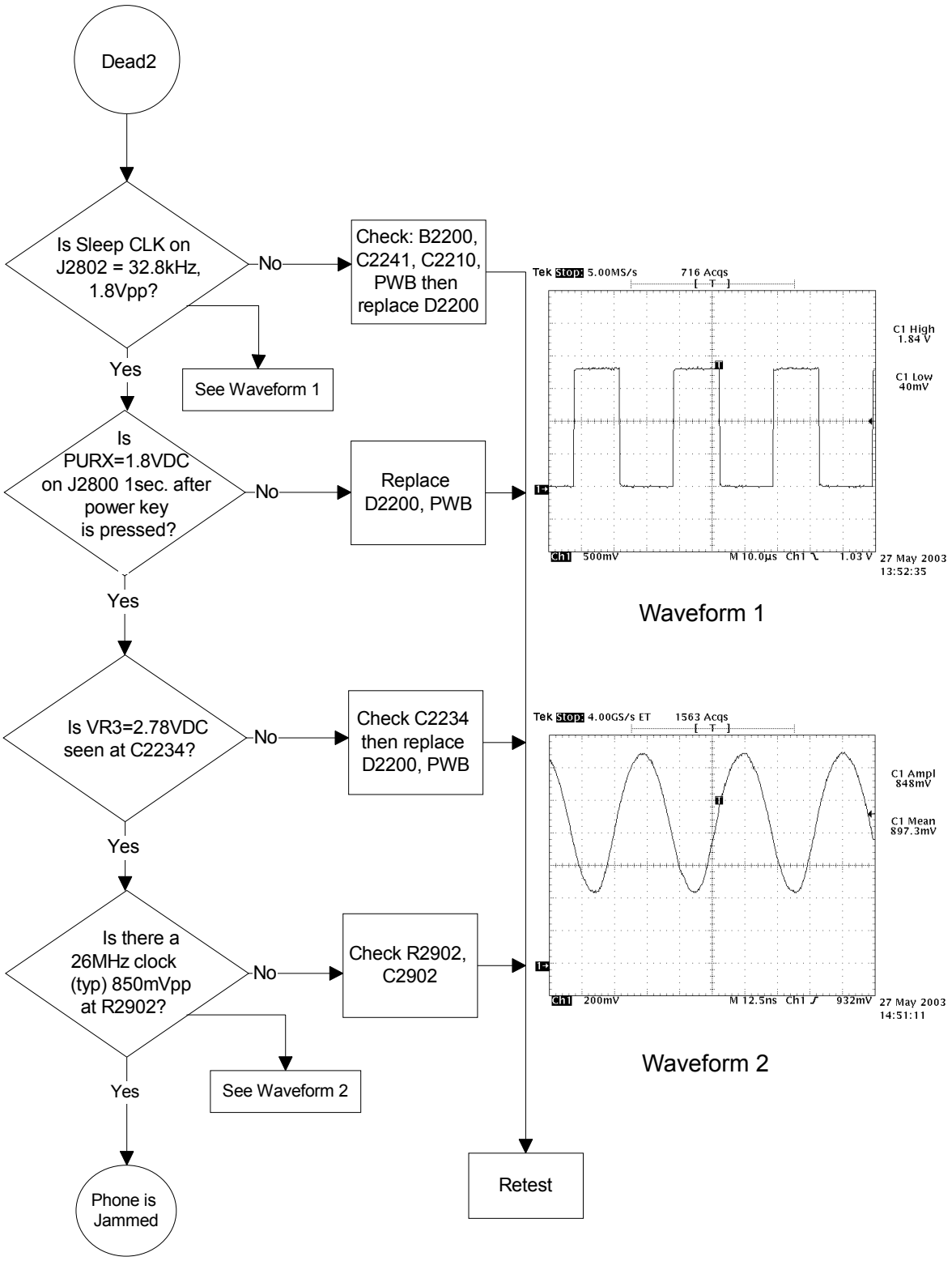
Phone is dead 2



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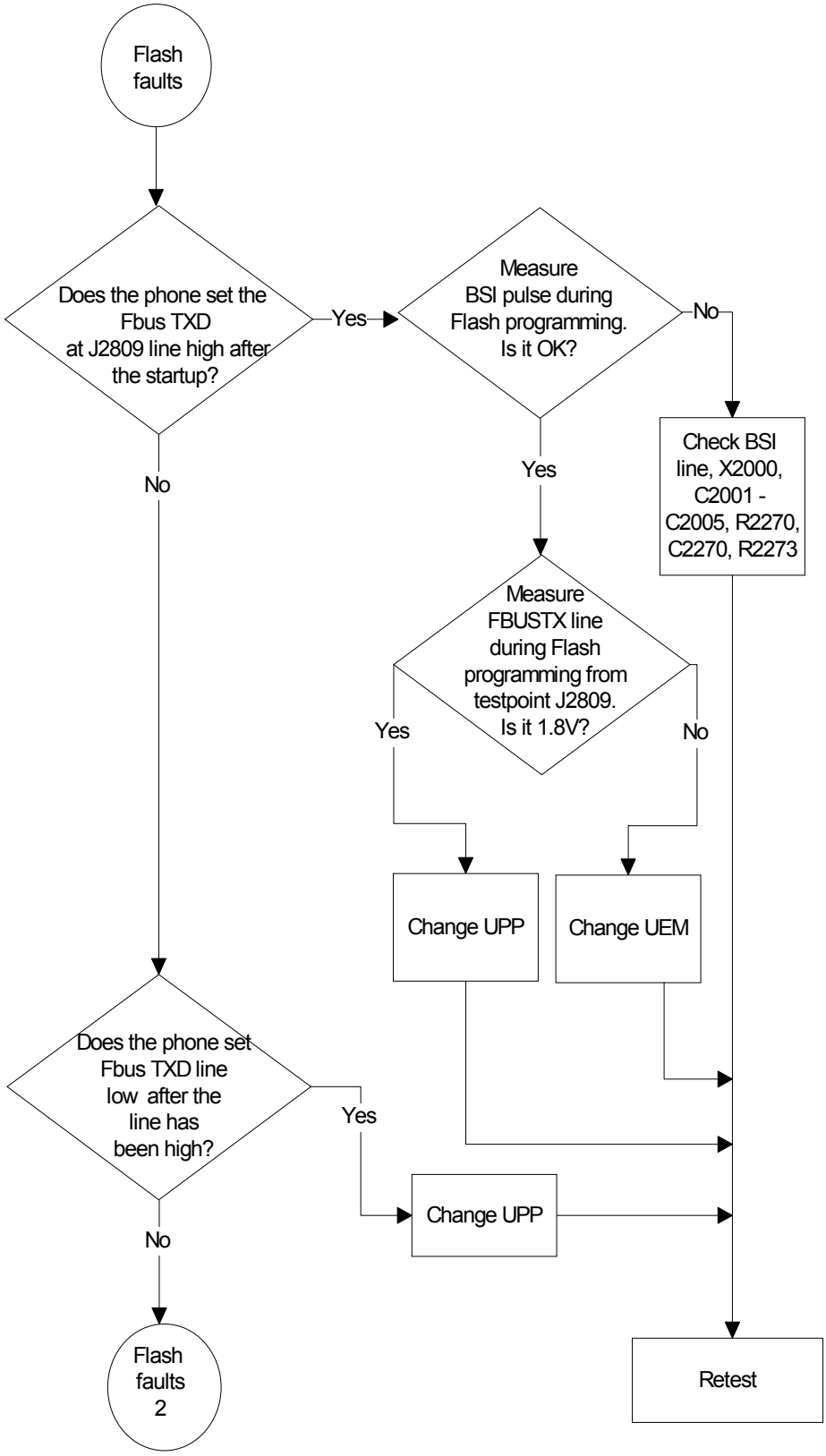
Flash faults 1


Flash faults
Does the phone set the Fbus TXD at J2809 line high after the startup?
Yes
No
Measure BSI pulse during Flash programming. Is it OK?
No
Yes
Check BSI line, X2000, C2001 - C2005, R2270, C2270, R2273
Measure FBUSTX line during Flash programming from testpoint J2809. Is it 1.8V?
Yes
No
Change UPP
Change UEM
Does the phone set Fbus TXD line low after the line has been high?
Yes
No
Change UPP
Flash faults 2
Retest

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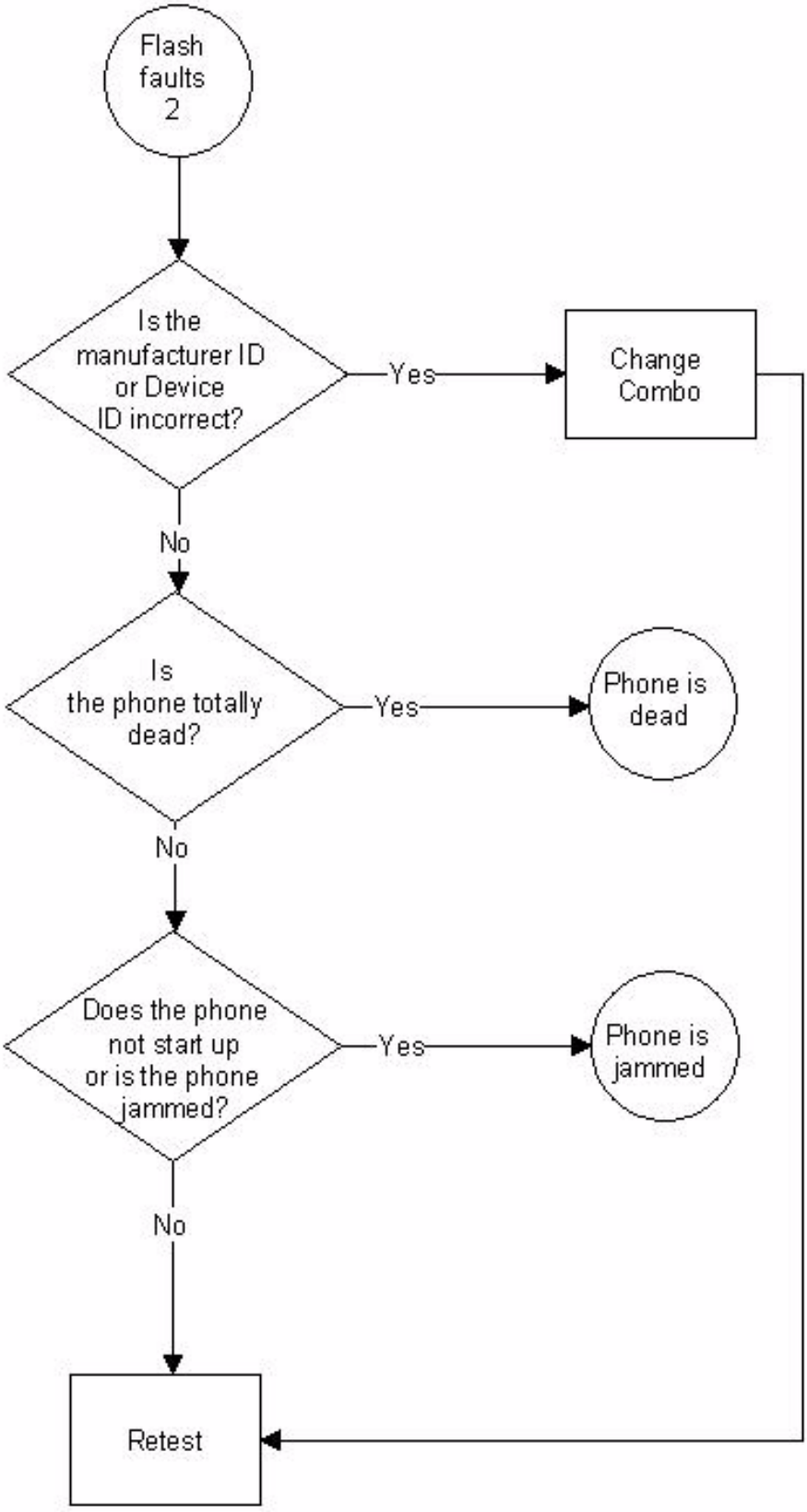
Flash faults 2



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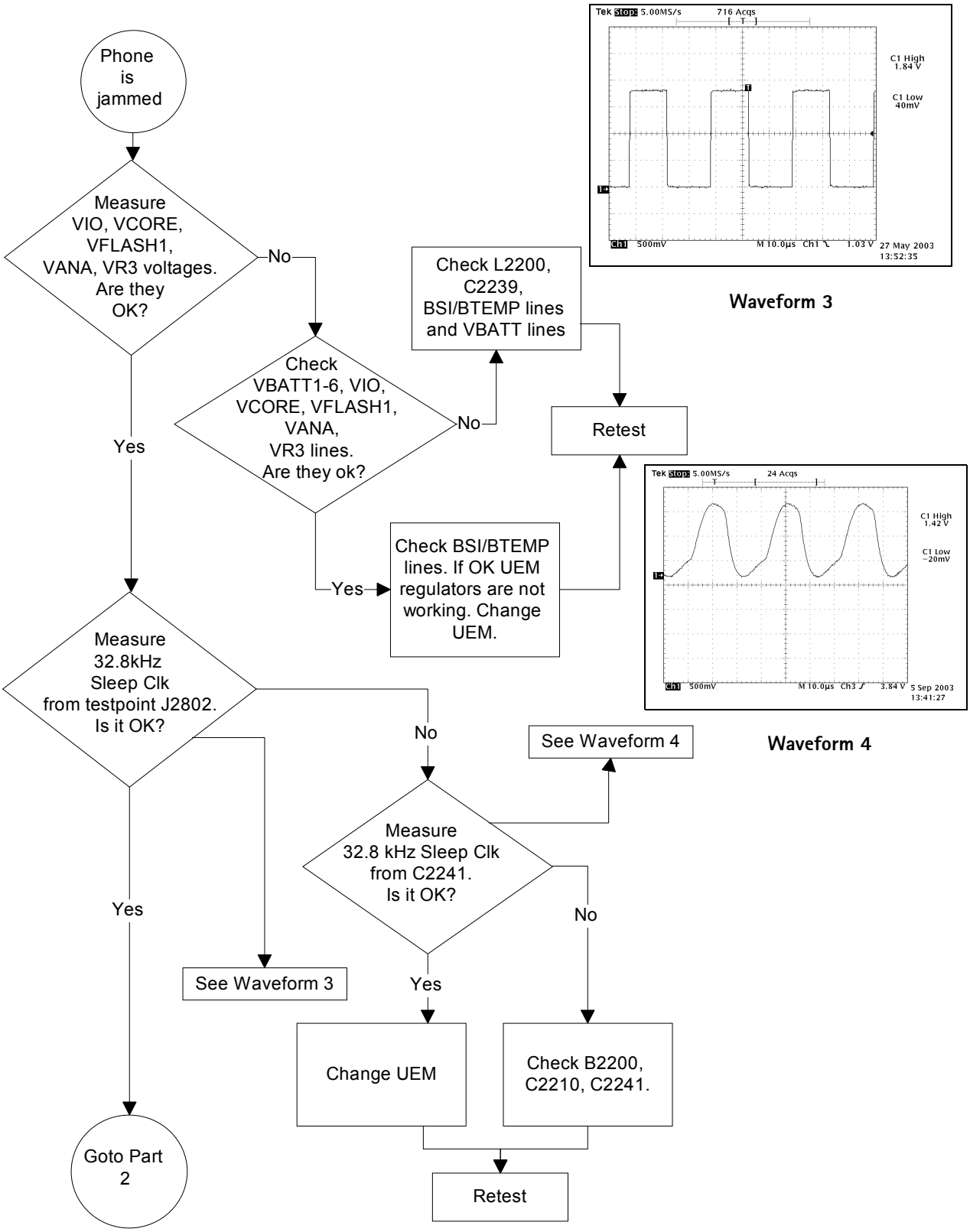
Phone is jammed 1


Phone is jammed
Measure VIO, VCORE, VFLASH1, VANA, VR3 voltages. Are they OK?
No
Yes
Check L2200, C2239, BSI/BTEMP lines and VBATT lines
Check VBATT1-6, VIO, VCORE, VFLASH1, VANA, VR3 lines. Are they ok?
No
Yes
Retest
Check BSI/BTEMP lines. If OK UEM regulators are not working. Change UEM.
Measure 32.8kHz Sleep Clk from testpoint J2802. Is it OK?
No
Yes
See Waveform 4
Measure 32.8 kHz Sleep Clk from C2241. Is it OK?
No
Yes
See Waveform 3
Change UEM
Check B2200, C2210, C2241.
Retest
Goto Part 2
Tek Stop: 5.00MS/s 716 Acqs
C1 High 1.84 V
C1 Low 40mV
Ch1 500mV M 10.0µs Ch1 1.03 V 27 May 2003 13:52:35
Waveform 3
Tek Stop: 5.00MS/s 24 Acqs
C1 High 1.42 V
C1 Low −20mV
Ch1 500mV M 10.0µs Ch3 3.84 V 5 Sep 2003 13:41:27
Waveform 4

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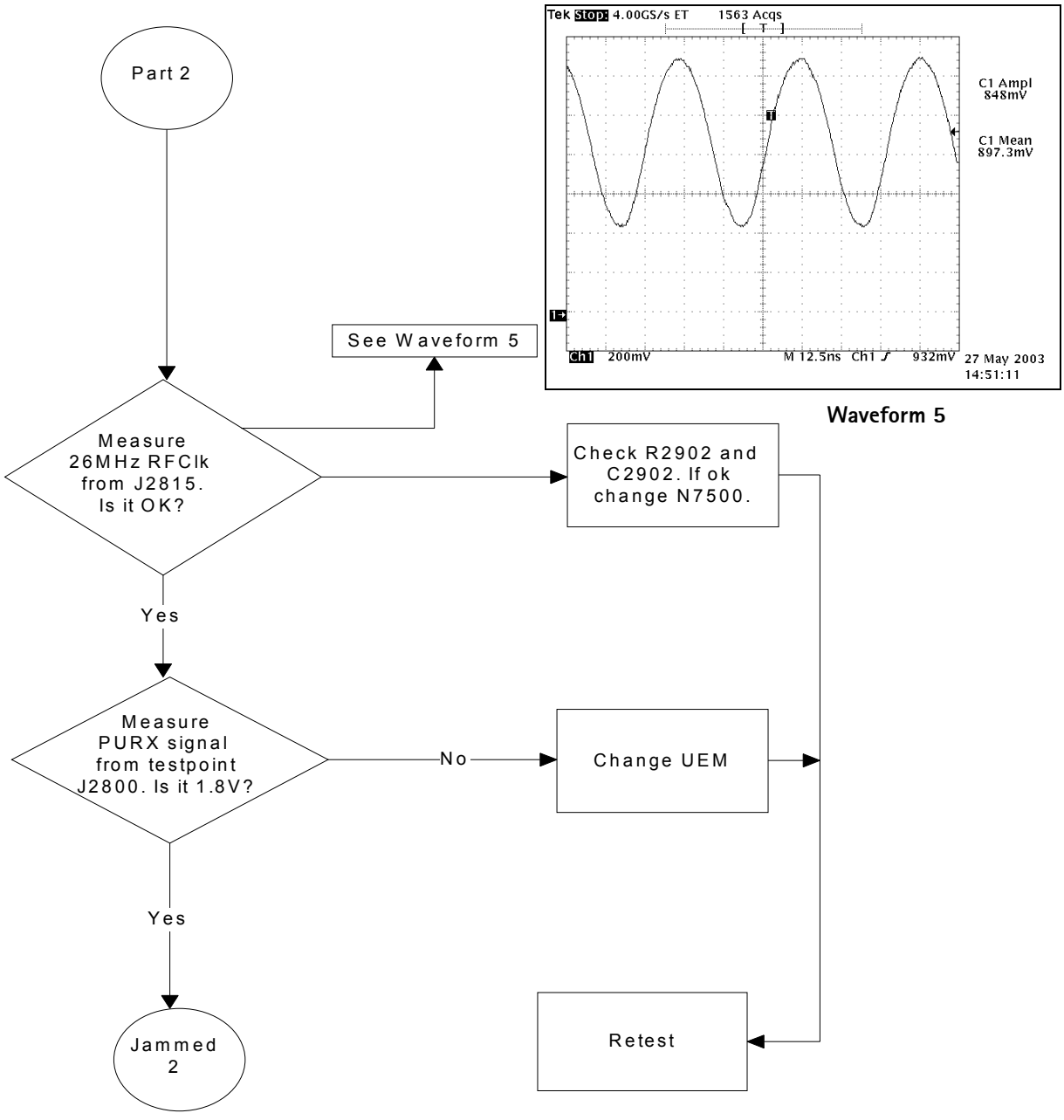

Waveform 5

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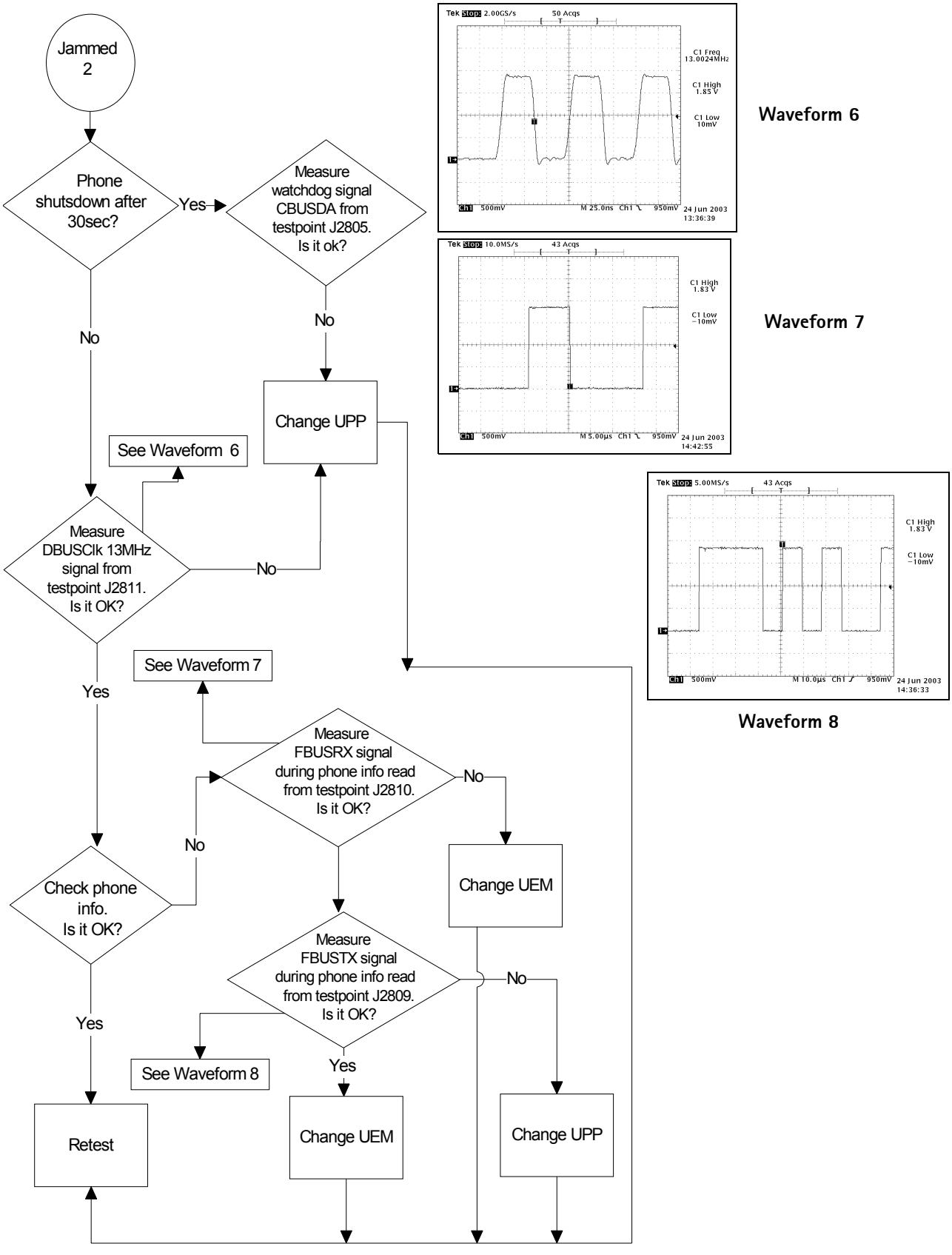
Phone is jammed 2



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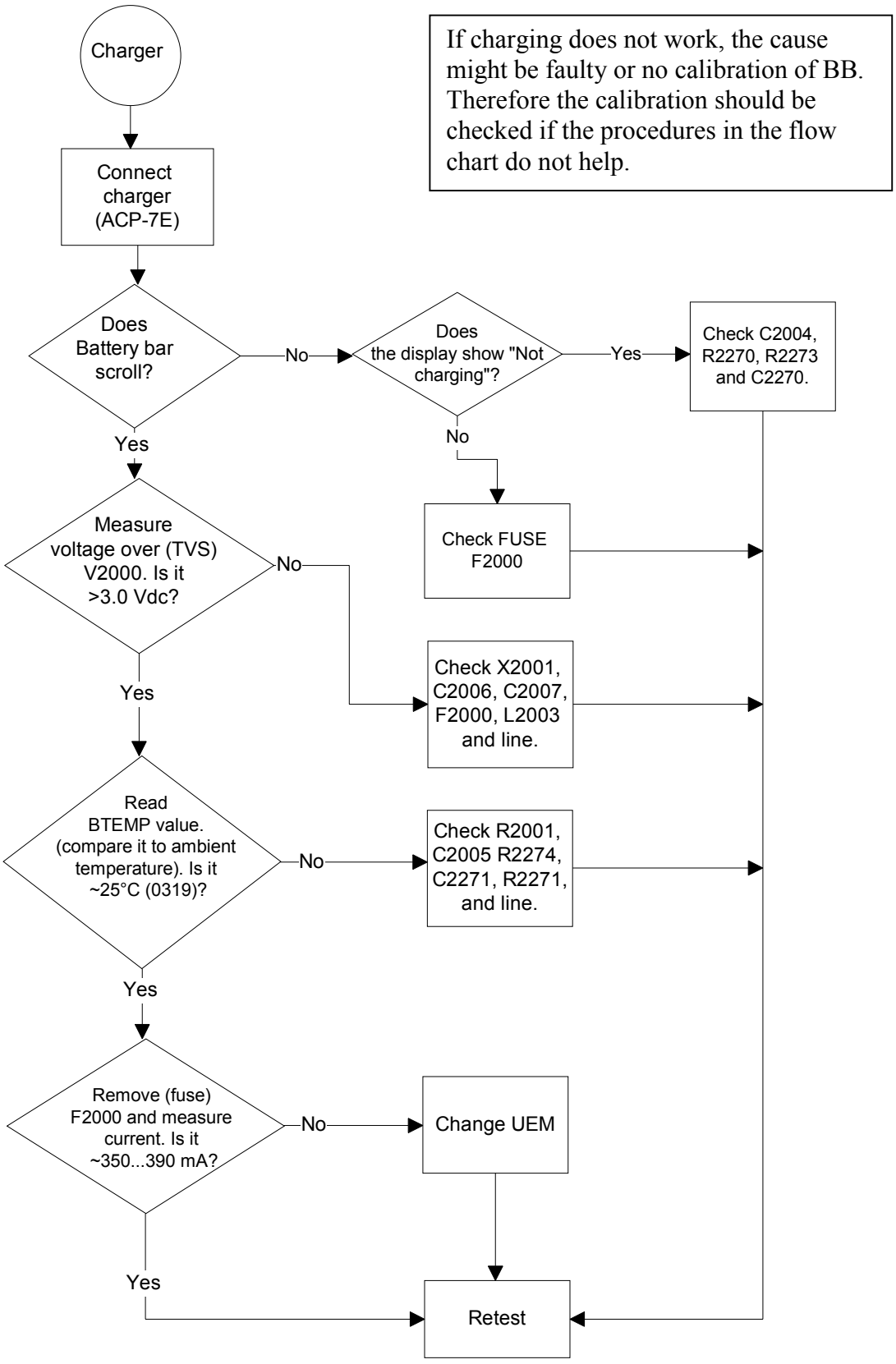
Charger


Charger
If charging does not work, the cause might be faulty or no calibration of BB. Therefore the calibration should be checked if the procedures in the flow chart do not help.
Connect charger (ACP-7E)
Does Battery bar scroll?
No
Does the display show "Not charging"?
Yes
Check C2004, R2270, R2273 and C2270.
Yes
No
Measure voltage over (TVS) V2000. Is it >3.0 Vdc?
No
Check FUSE F2000
Yes
Check X2001, C2006, C2007, F2000, L2003 and line.
Read BTEMP value. (compare it to ambient temperature). Is it ~25°C (0319)?
No
Check R2001, C2005 R2274, C2271, R2271, and line.
Yes
Remove (fuse) F2000 and measure current. Is it ~350...390 mA?
No
Change UEM
Yes
Retest

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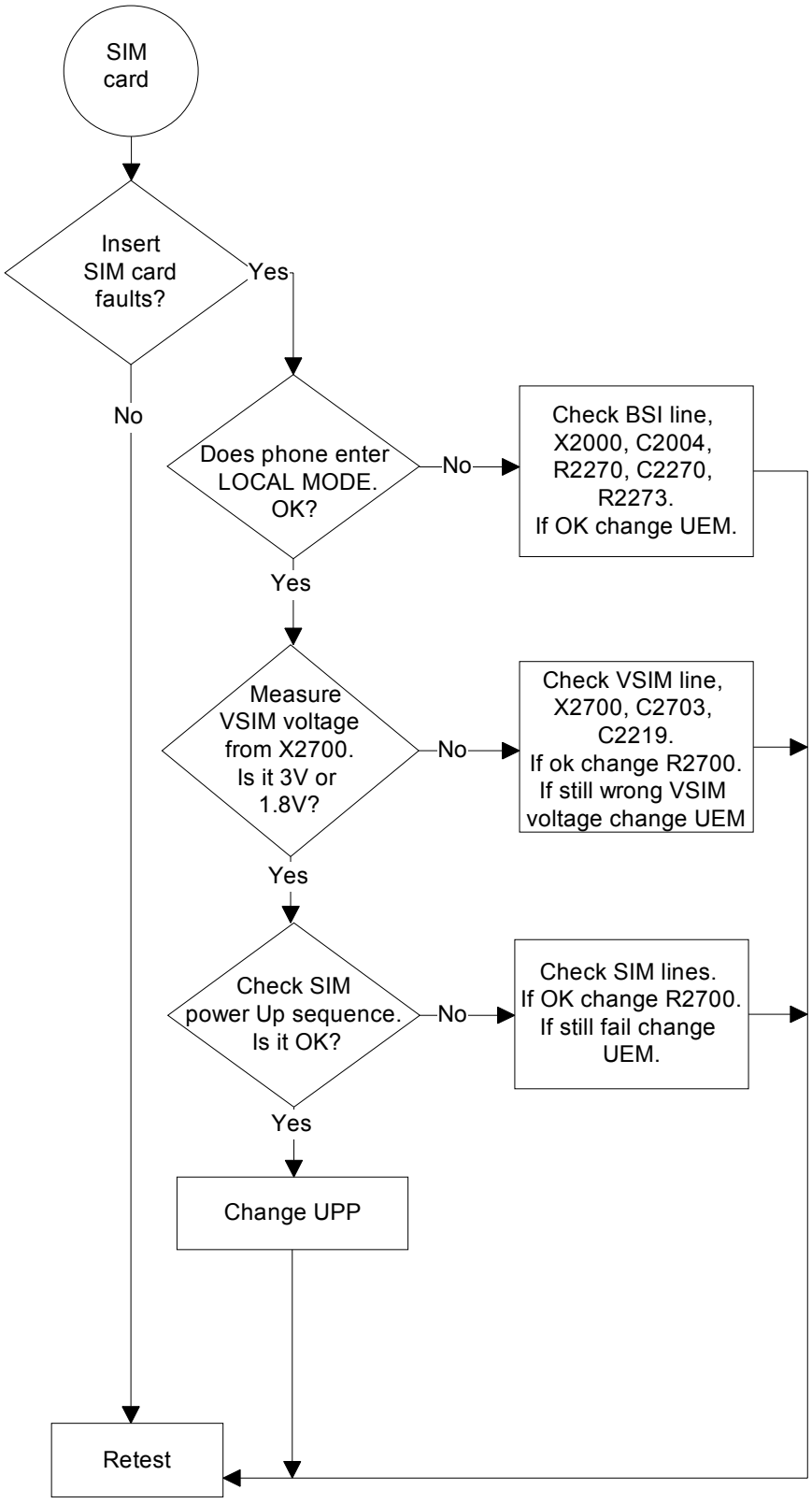
SIM Card


SIM card
Insert SIM card faults?
Yes
No
Does phone enter LOCAL MODE. OK?
No
Check BSI line, X2000, C2004, R2270, C2270, R2273. If OK change UEM.
Yes
Measure VSIM voltage from X2700. Is it 3V or 1.8V?
No
Check VSIM line, X2700, C2703, C2219. If ok change R2700. If still wrong VSIM voltage change UEM
Yes
Check SIM power Up sequence. Is it OK?
No
Check SIM lines. If OK change R2700. If still fail change UEM.
Yes
Change UPP
Retest

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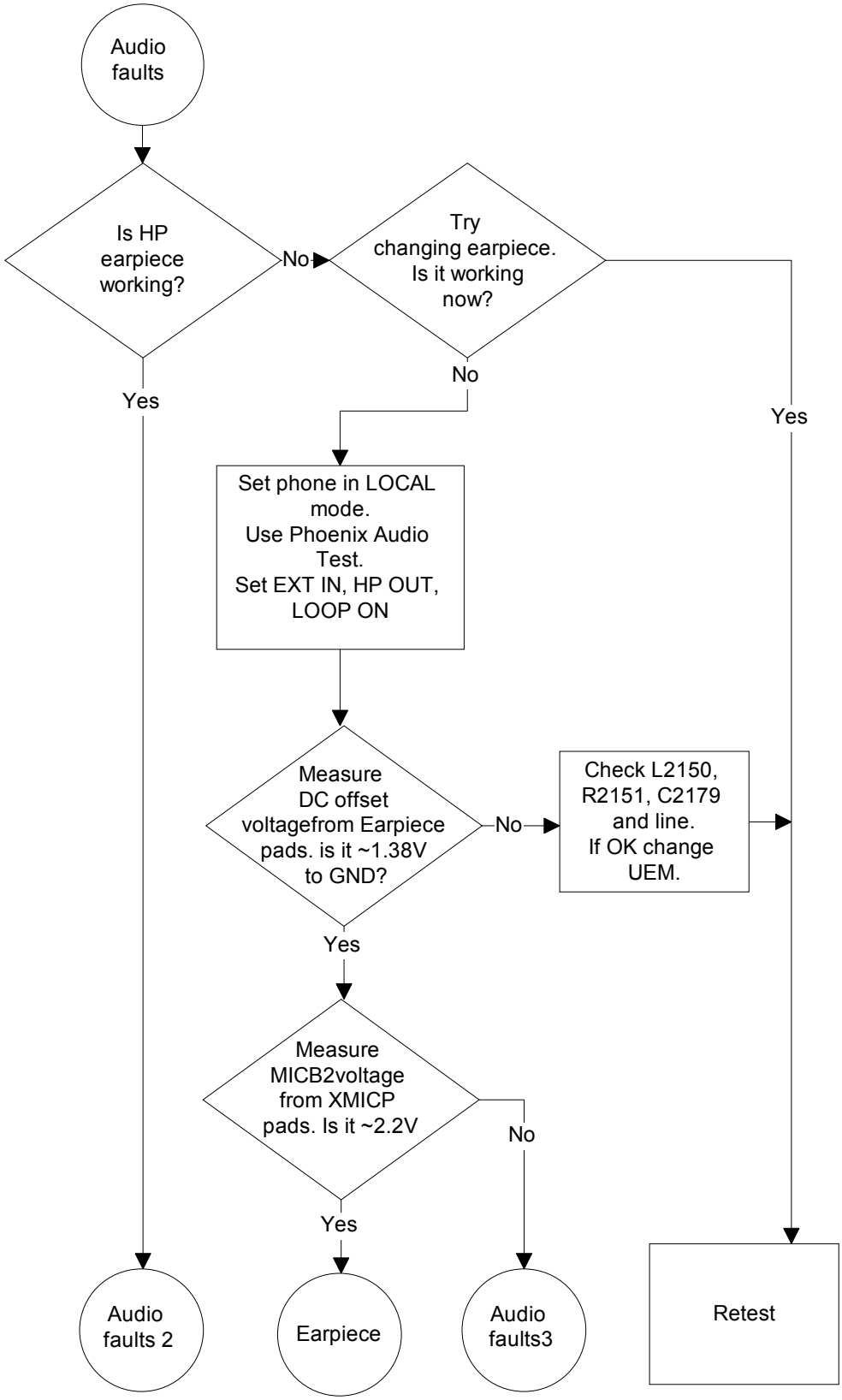
Audio faults 1



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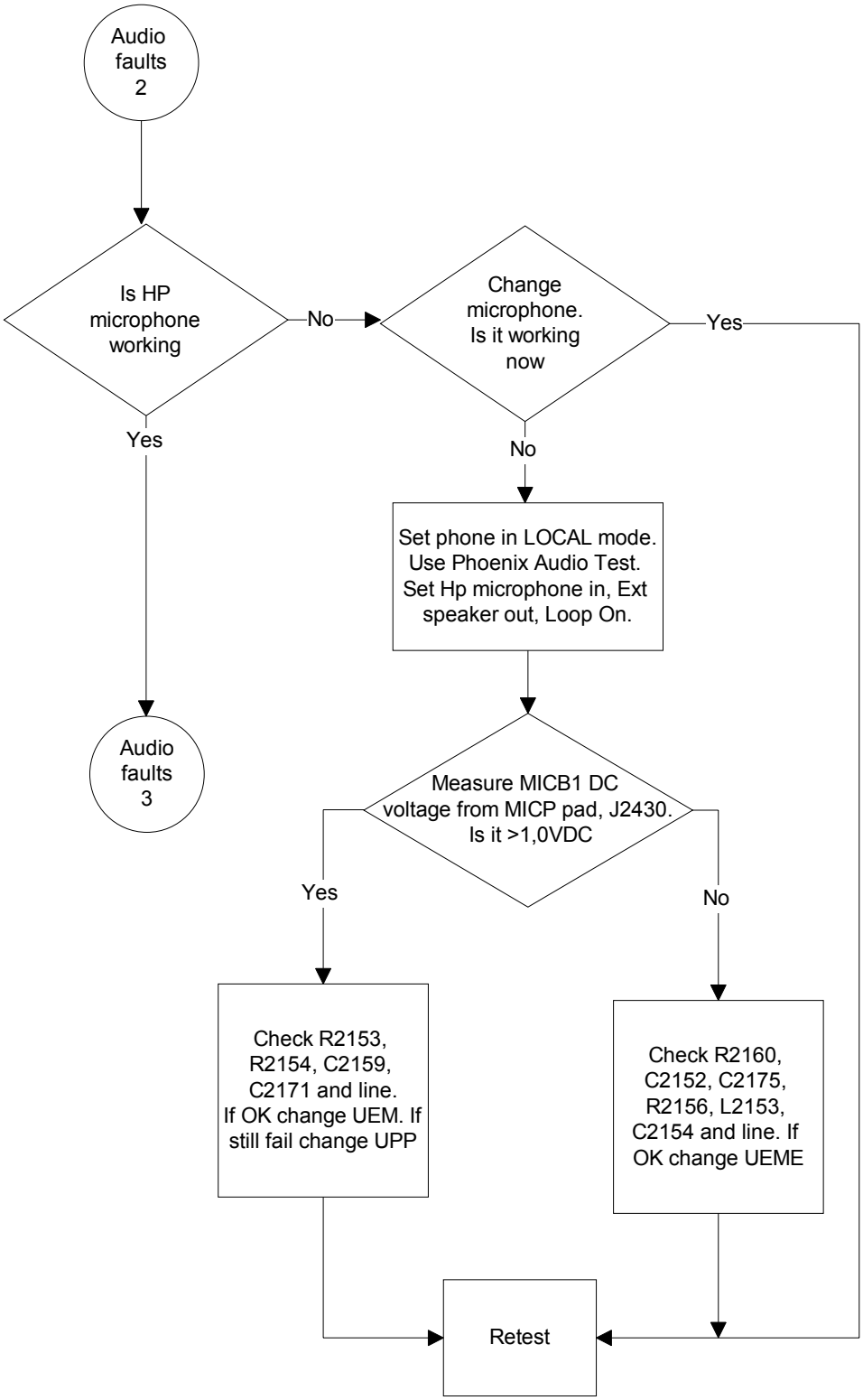
Audio faults 2


Audio faults 2
Is HP microphone working
No
Change microphone. Is it working now
Yes
Yes
No
Set phone in LOCAL mode. Use Phoenix Audio Test. Set Hp microphone in, Ext speaker out, Loop On.
Audio faults 3
Measure MICB1 DC voltage from MICP pad, J2430. Is it >1,0VDC
Yes
No
Check R2153, R2154, C2159, C2171 and line. If OK change UEM. If still fail change UPP
Check R2160, C2152, C2175, R2156, L2153, C2154 and line. If OK change UEME
Retest

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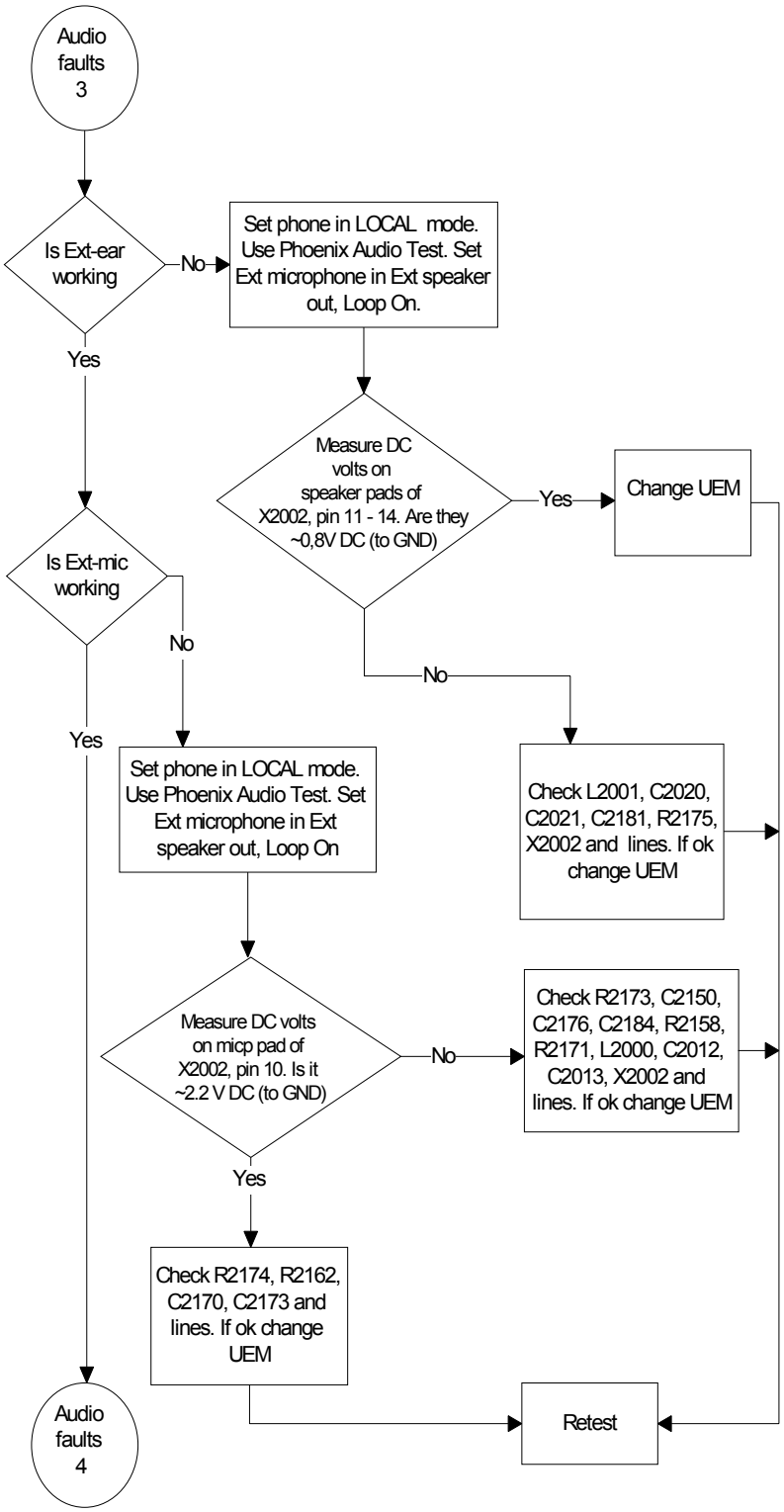
Audio faults 3


Audio faults 3
Is Ext-ear working
No
Set phone in LOCAL mode. Use Phoenix Audio Test. Set Ext microphone in Ext speaker out, Loop On.
Yes
Measure DC volts on speaker pads of X2002, pin 11 - 14. Are they ~0,8V DC (to GND)
Yes
Change UEM
Is Ext-mic working
No
No
Yes
Set phone in LOCAL mode. Use Phoenix Audio Test. Set Ext microphone in Ext speaker out, Loop On
Check L2001, C2020, C2021, C2181, R2175, X2002 and lines. If ok change UEM
Measure DC volts on micp pad of X2002, pin 10. Is it ~2.2 V DC (to GND)
No
Check R2173, C2150, C2176, C2184, R2158, R2171, L2000, C2012, C2013, X2002 and lines. If ok change UEM
Yes
Check R2174, R2162, C2170, C2173 and lines. If ok change UEM
Audio faults 4
Retest

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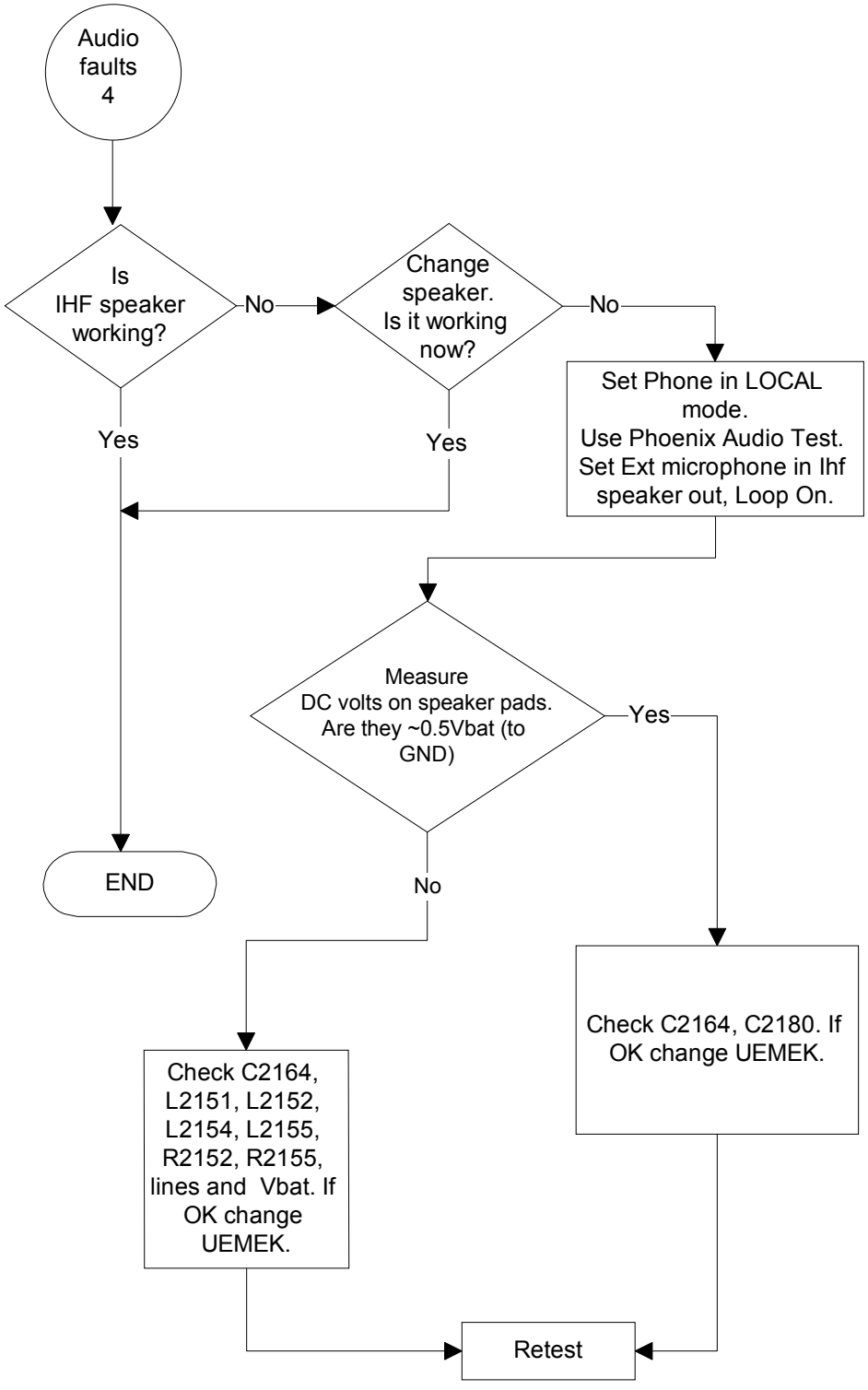
Audio faults 4


Audio faults 4
Is IHF speaker working?
No
Change speaker. Is it working now?
No
Yes
Yes
Set Phone in LOCAL mode. Use Phoenix Audio Test. Set Ext microphone in Ihf speaker out, Loop On.
Measure DC volts on speaker pads. Are they ~0.5Vbat (to GND)
Yes
END
No
Check C2164, L2151, L2152, L2154, L2155, R2152, R2155, lines and Vbat. If OK change UEMEK.
Check C2164, C2180. If OK change UEMEK.
Retest

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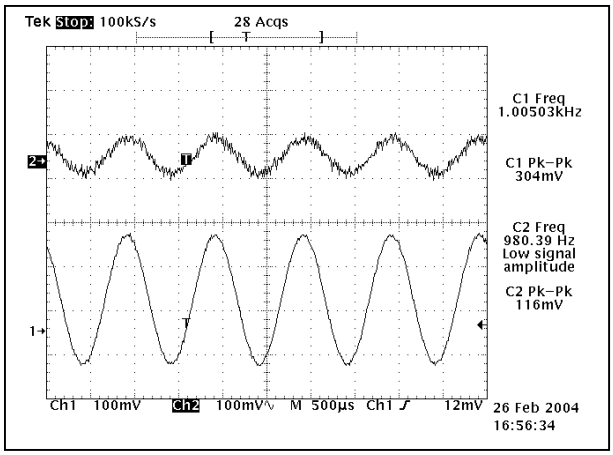
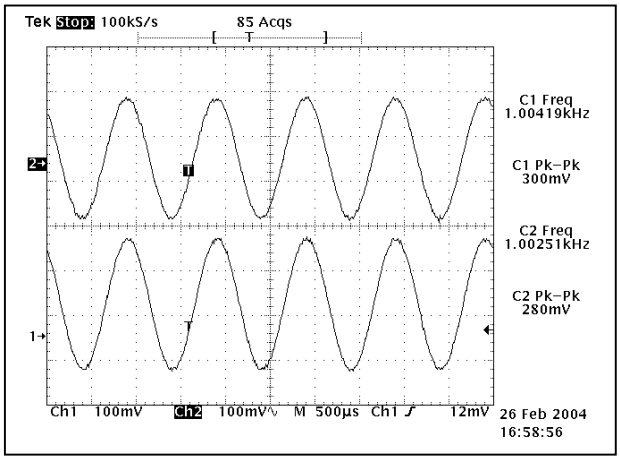
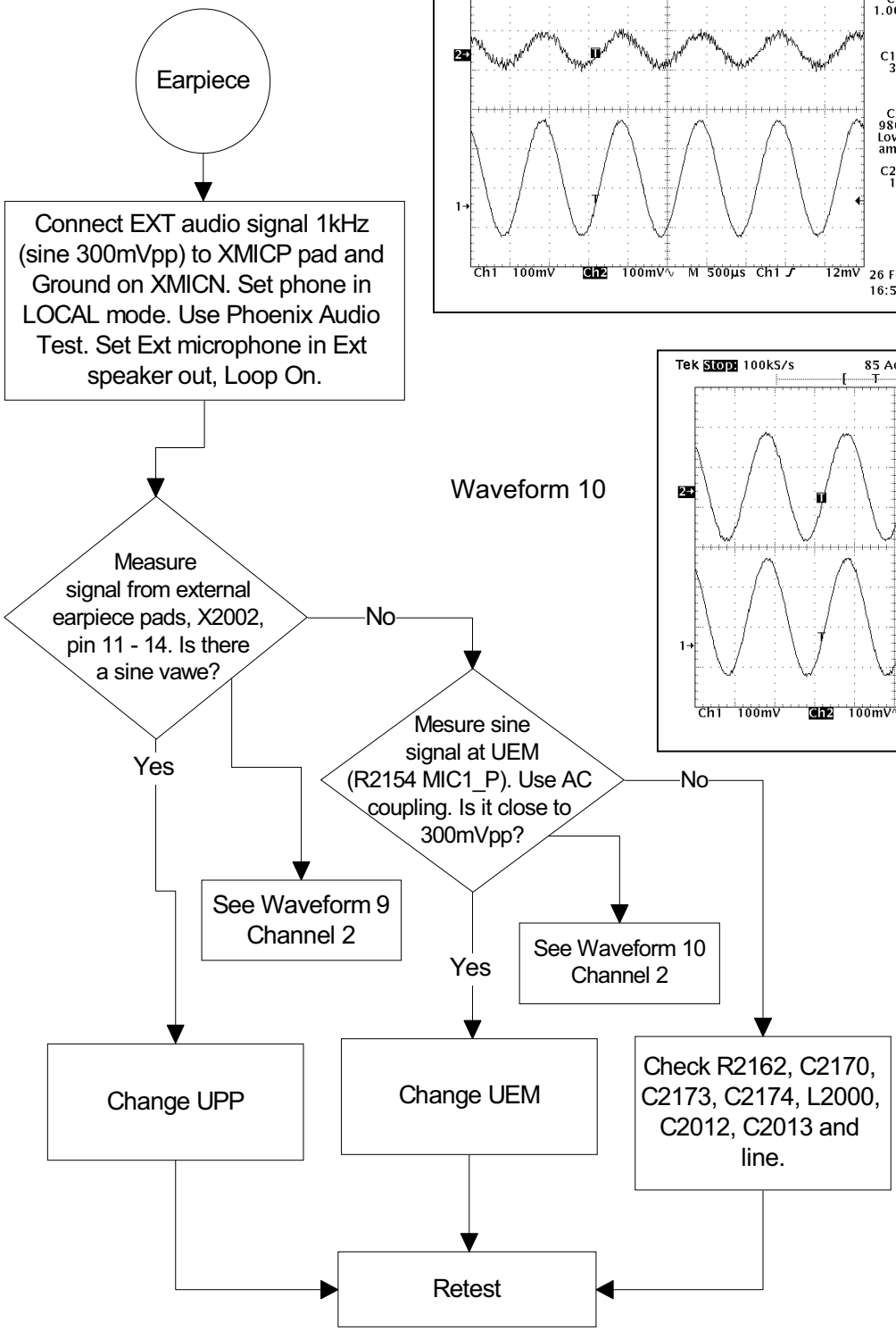
Earpiece


Tek Stop: 100kS/s 28 Acqs
C1 Freq 1.00503kHz
C1 Pk-Pk 304mV
C2 Freq 980.39 Hz Low signal amplitude
C2 Pk-Pk 116mV
Ch1 100mV Ch2 100mV M 500µs Ch1 12mV
26 Feb 2004 16:56:34

Waveform 9


Tek Stop: 100kS/s 85 Acqs
C1 Freq 1.00419kHz
C1 Pk-Pk 300mV
C2 Freq 1.00251kHz
C2 Pk-Pk 280mV
Ch1 100mV Ch2 100mV M 500µs Ch1 12mV
26 Feb 2004 16:58:56

Waveform 10


Earpiece
Connect EXT audio signal 1kHz (sine 300mVpp) to XMICP pad and Ground on XMICN. Set phone in LOCAL mode. Use Phoenix Audio Test. Set Ext microphone in Ext speaker out, Loop On.
Measure signal from external earpiece pads, X2002, pin 11 - 14. Is there a sine vawe?
No
Yes
See Waveform 9 Channel 2
Mesure sine signal at UEM (R2154 MIC1_P). Use AC coupling. Is it close to 300mVpp?
No
Yes
See Waveform 10 Channel 2
Change UPP
Change UEM
Check R2162, C2170, C2173, C2174, L2000, C2012, C2013 and line.
Retest

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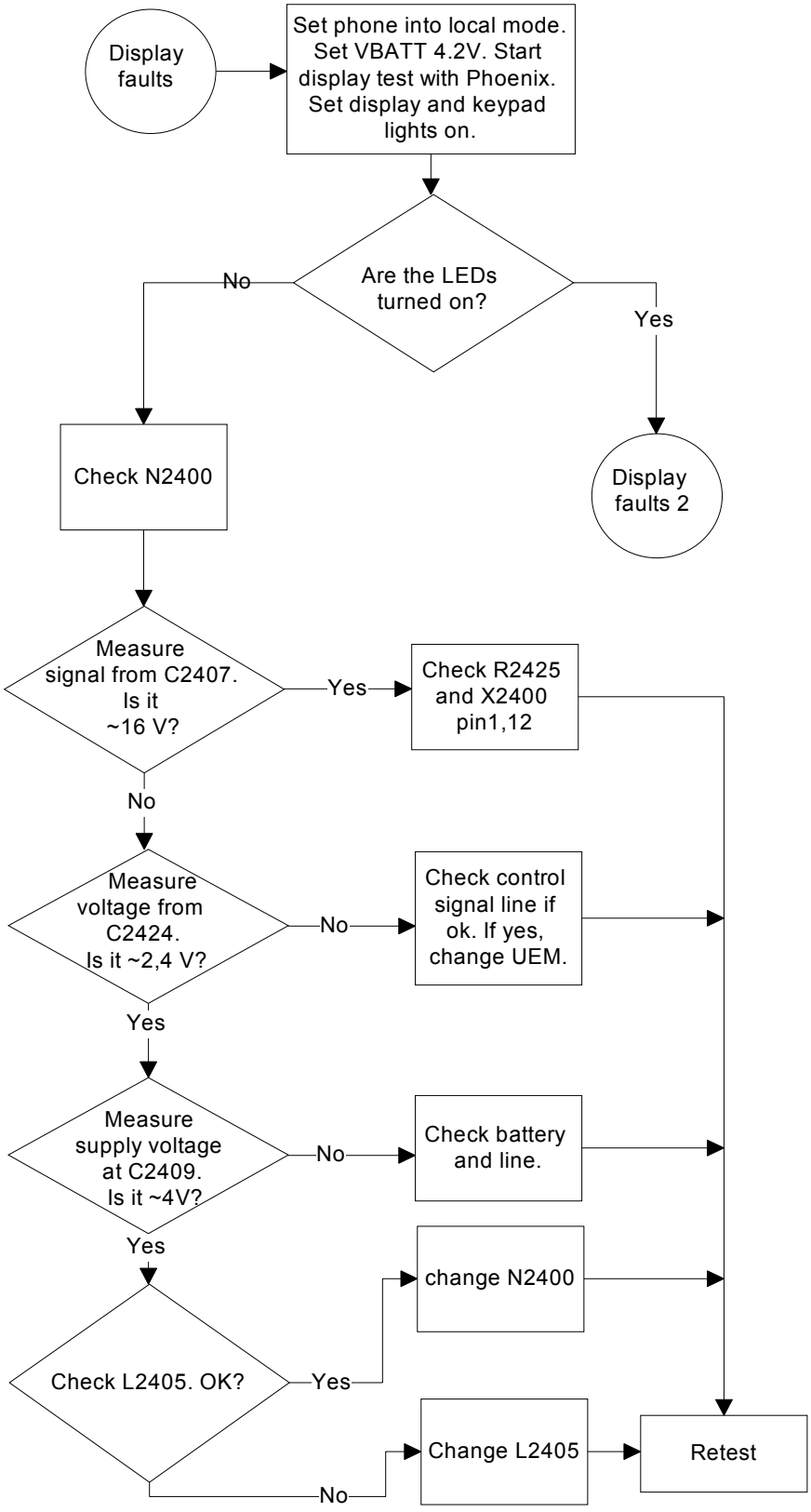
Display faults 1



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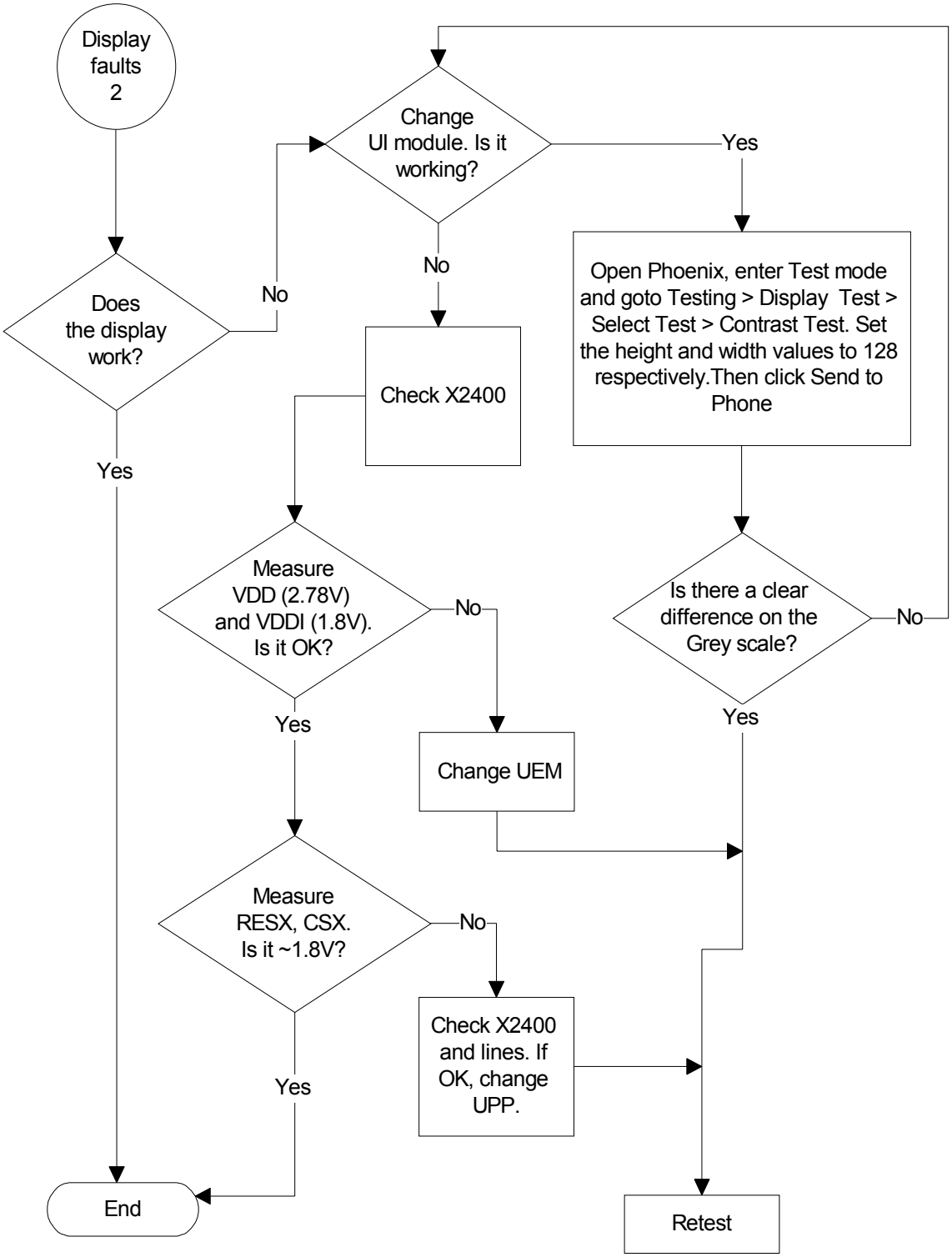
Display faults 2


Display faults 2
Change UI module. Is it working?
Yes
No
Does the display work?
No
Yes
Check X2400
Open Phoenix, enter Test mode and goto Testing > Display Test > Select Test > Contrast Test. Set the height and width values to 128 respectively.Then click Send to Phone
Measure VDD (2.78V) and VDDI (1.8V). Is it OK?
No
Yes
Change UEM
Is there a clear difference on the Grey scale?
No
Yes
Measure RESX, CSX. Is it ~1.8V?
No
Yes
Check X2400 and lines. If OK, change UPP.
End
Retest

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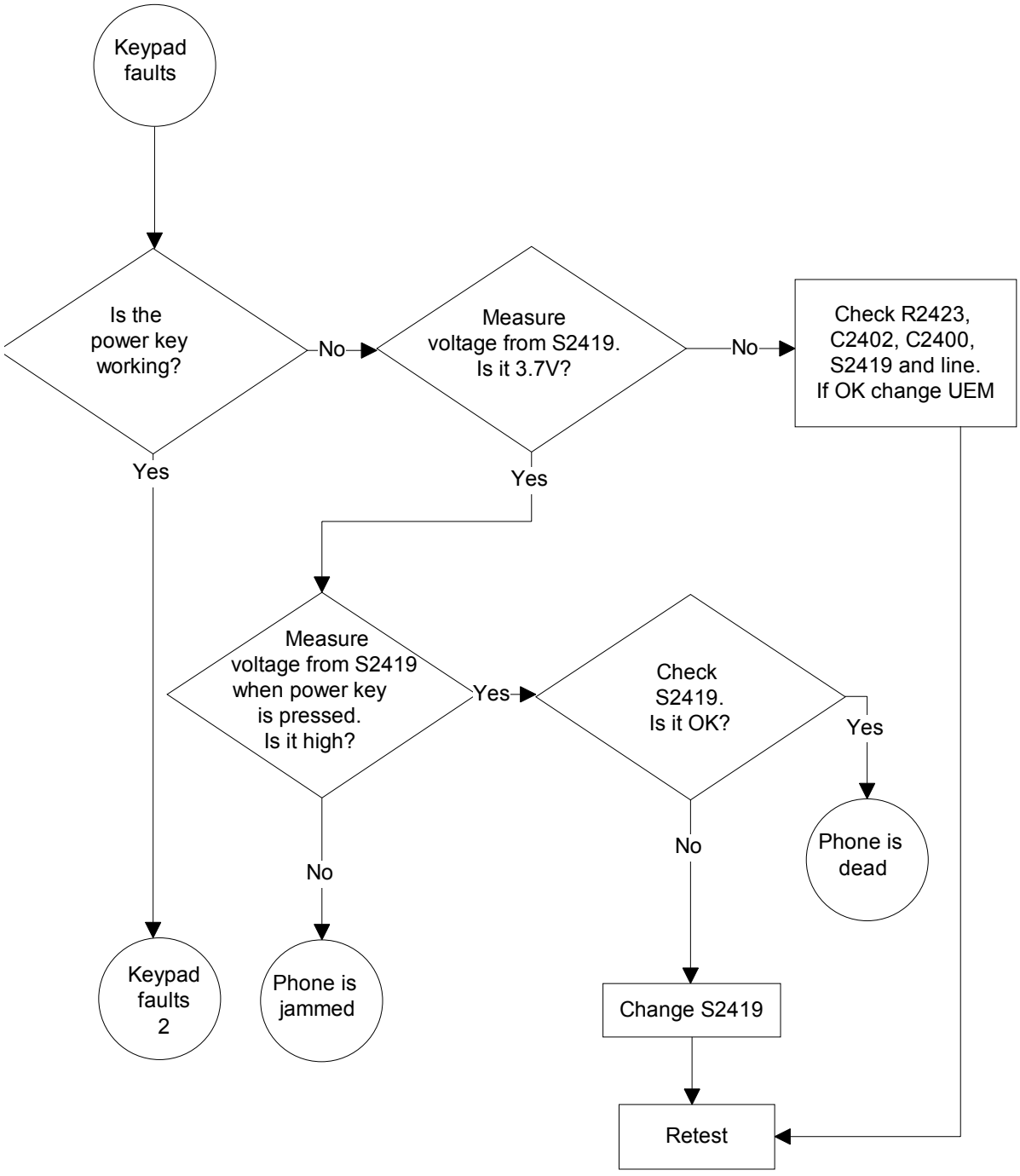
Keypad faults 1



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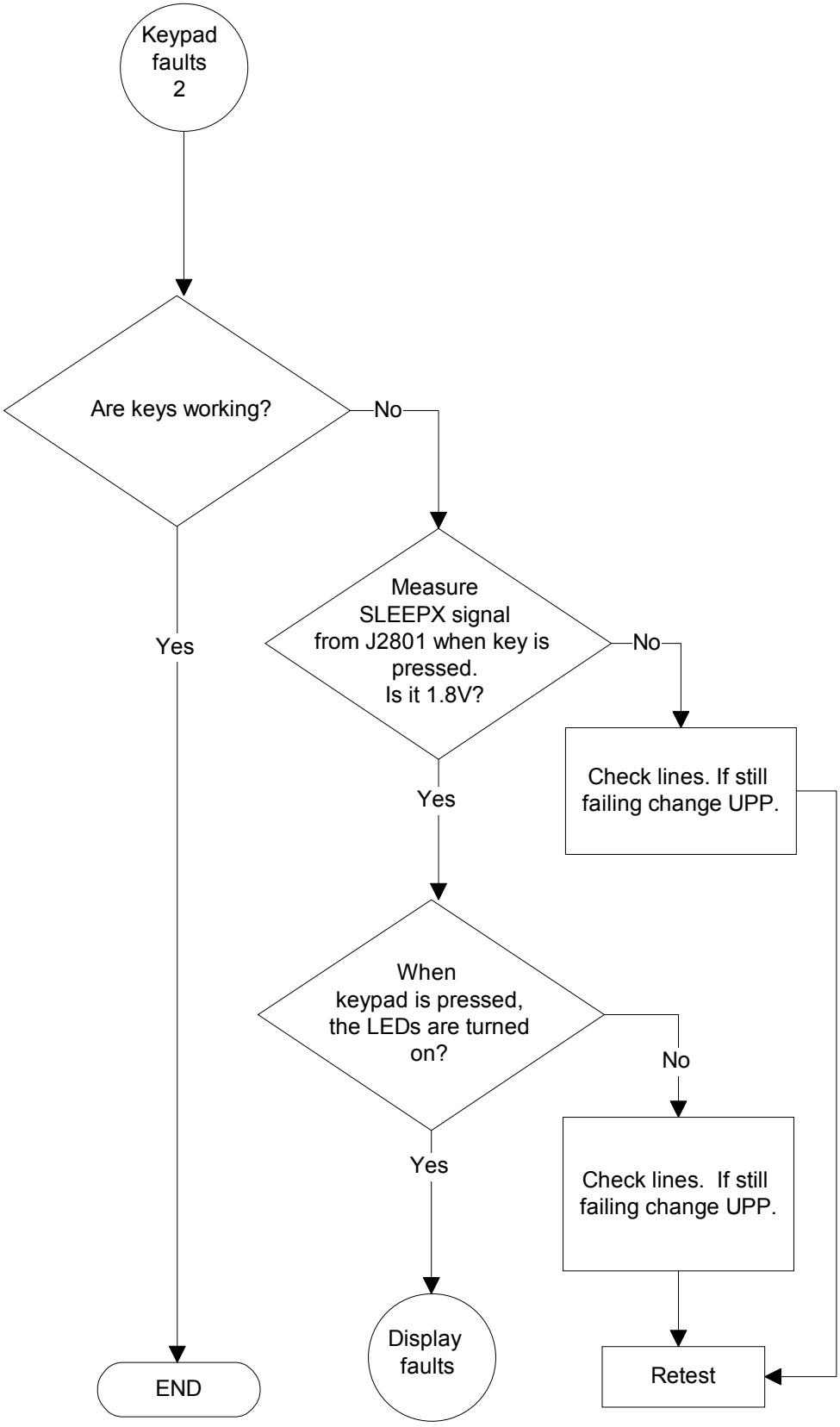
Keypad faults 2



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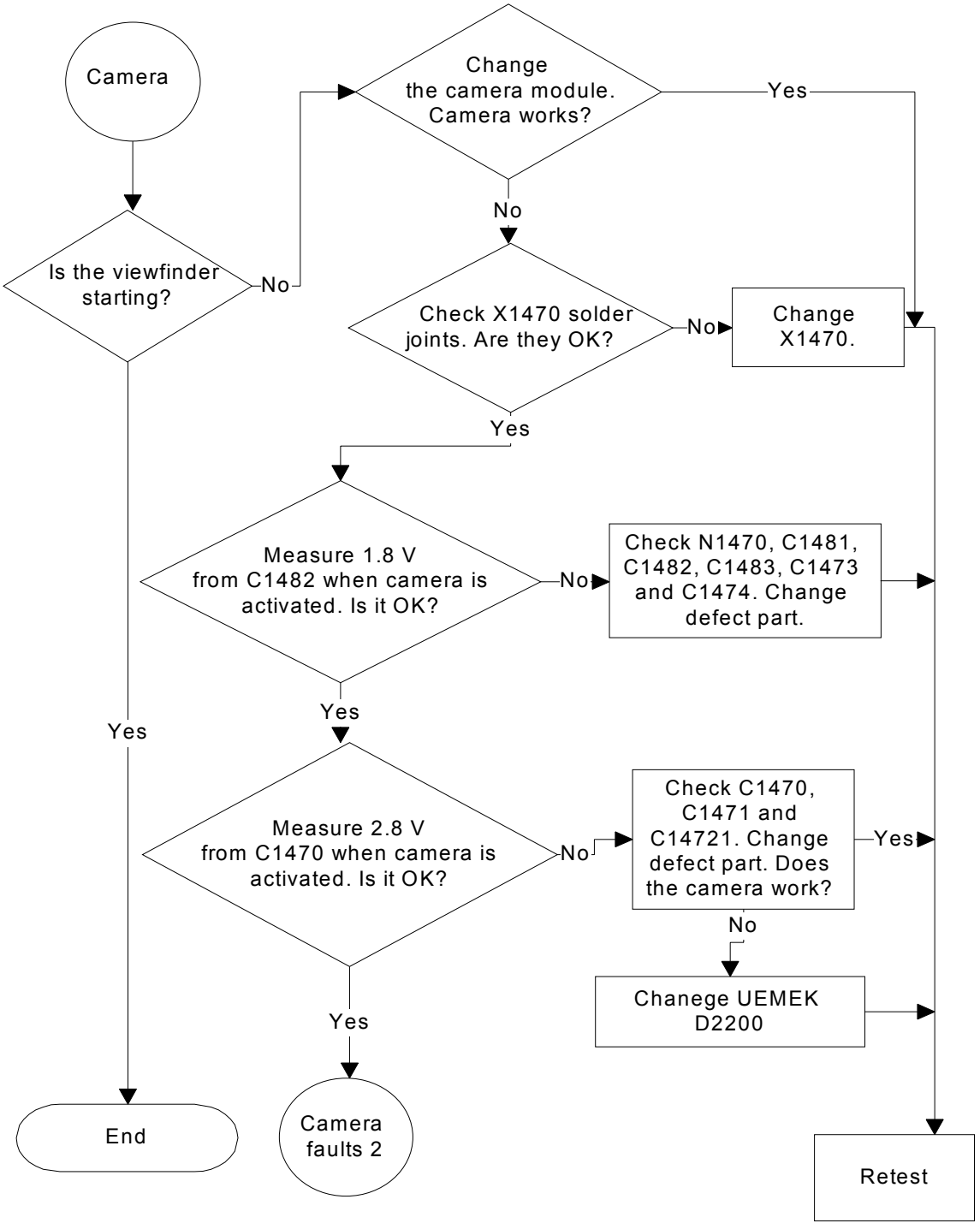
Camera faults 1



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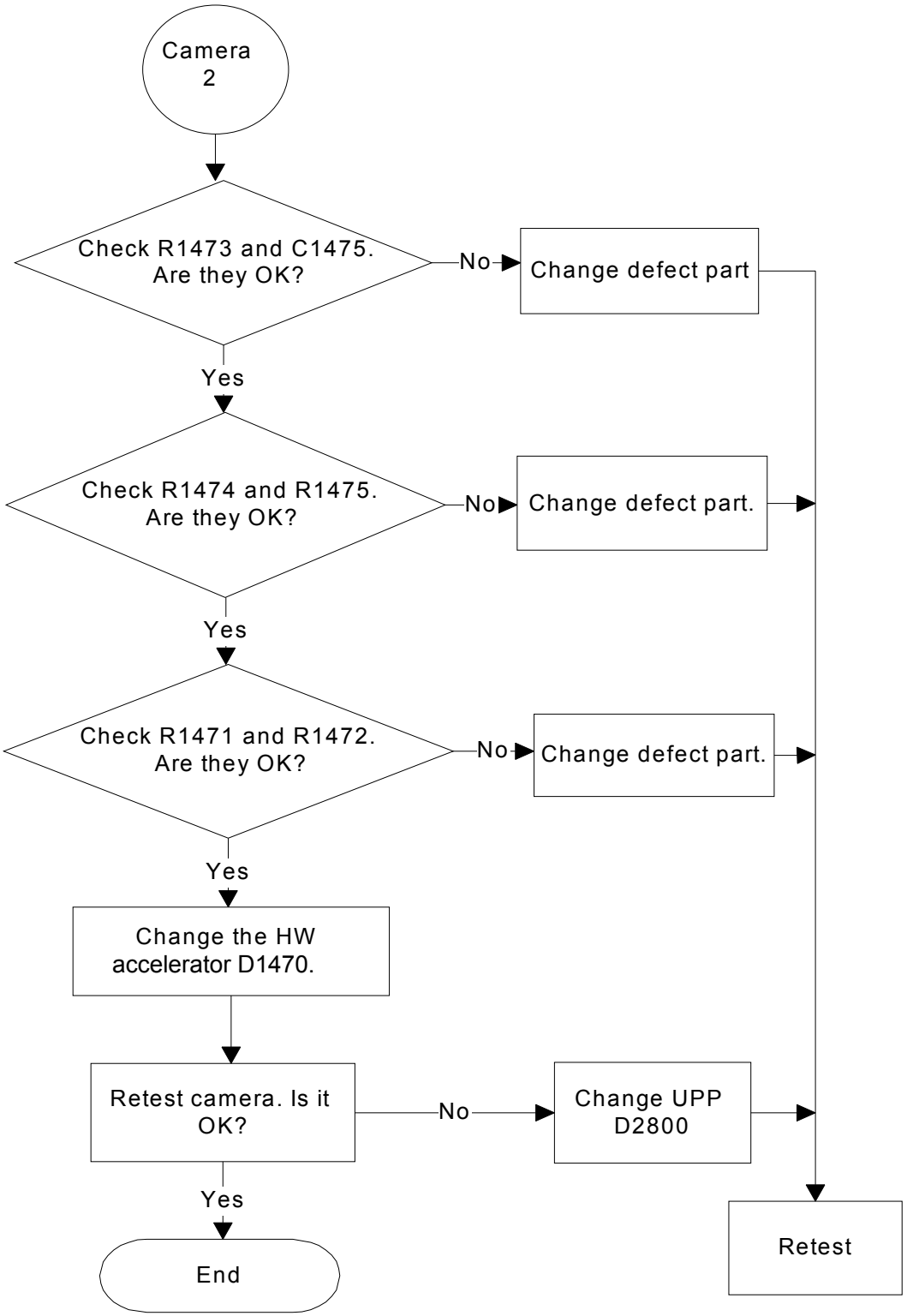
Camera faults 2



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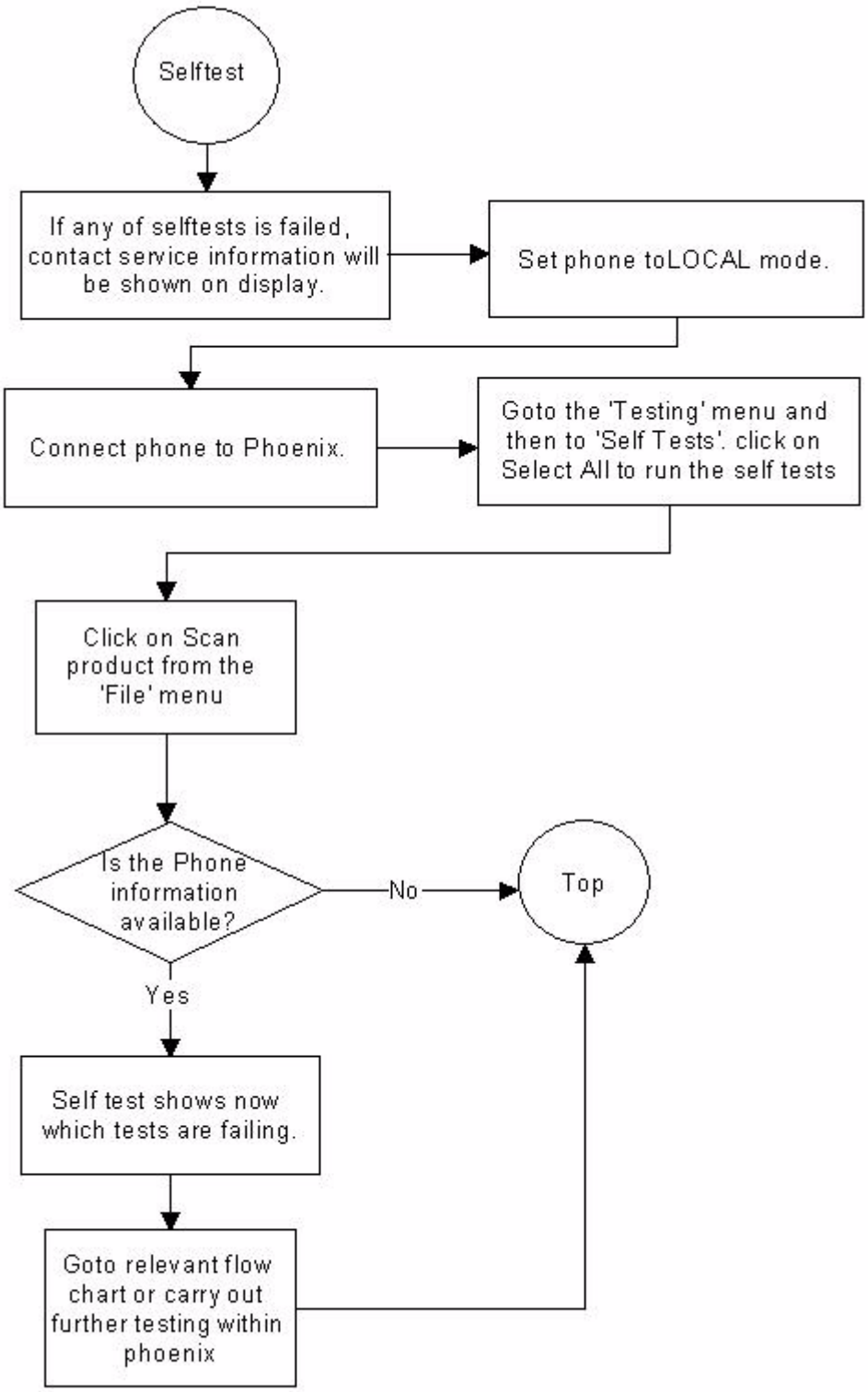
Self test


Selftest
If any of selftests is failed, contact service information will be shown on display.
Set phone toLOCAL mode.
Connect phone to Phoenix.
Goto the 'Testing' menu and then to 'Self Tests'. click on Select All to run the self tests
Click on Scan product from the 'File' menu
Is the Phone information available?
No
Top
Yes
Self test shows now which tests are failing.
Goto relevant flow chart or carry out further testing within phoenix

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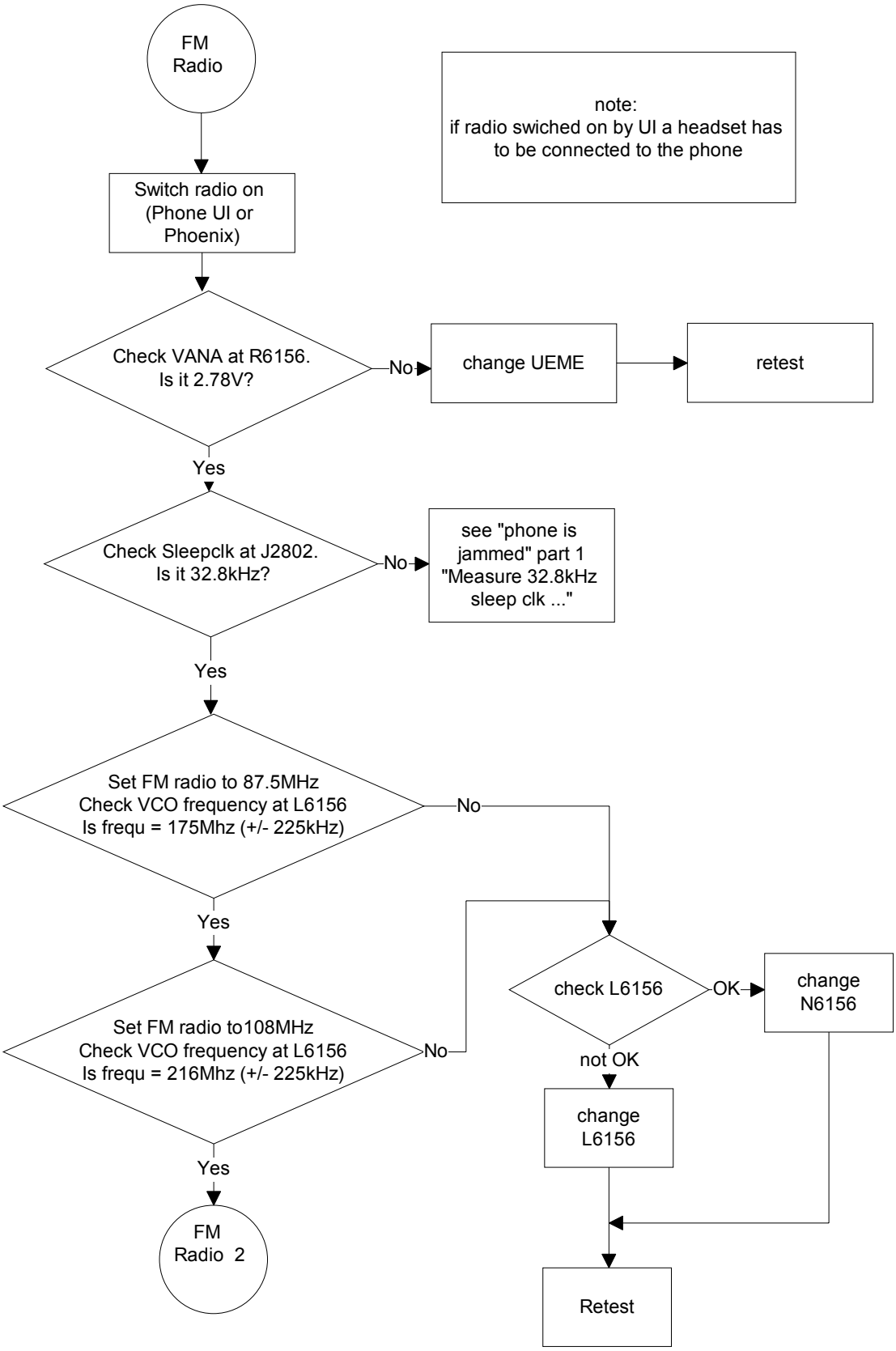
FM radio 1


FM Radio
note: if radio swiched on by UI a headset has to be connected to the phone
Switch radio on (Phone UI or Phoenix)
Check VANA at R6156. Is it 2.78V?
No
change UEME
retest
Yes
Check Sleepclk at J2802. Is it 32.8kHz?
No
see "phone is jammed" part 1 "Measure 32.8kHz sleep clk ..."
Yes
Set FM radio to 87.5MHz Check VCO frequency at L6156 Is frequ = 175Mhz (+/- 225kHz)
No
Yes
check L6156
OK
change N6156
not OK
change L6156
Set FM radio to108MHz Check VCO frequency at L6156 Is frequ = 216Mhz (+/- 225kHz)
No
Yes
FM Radio 2
Retest

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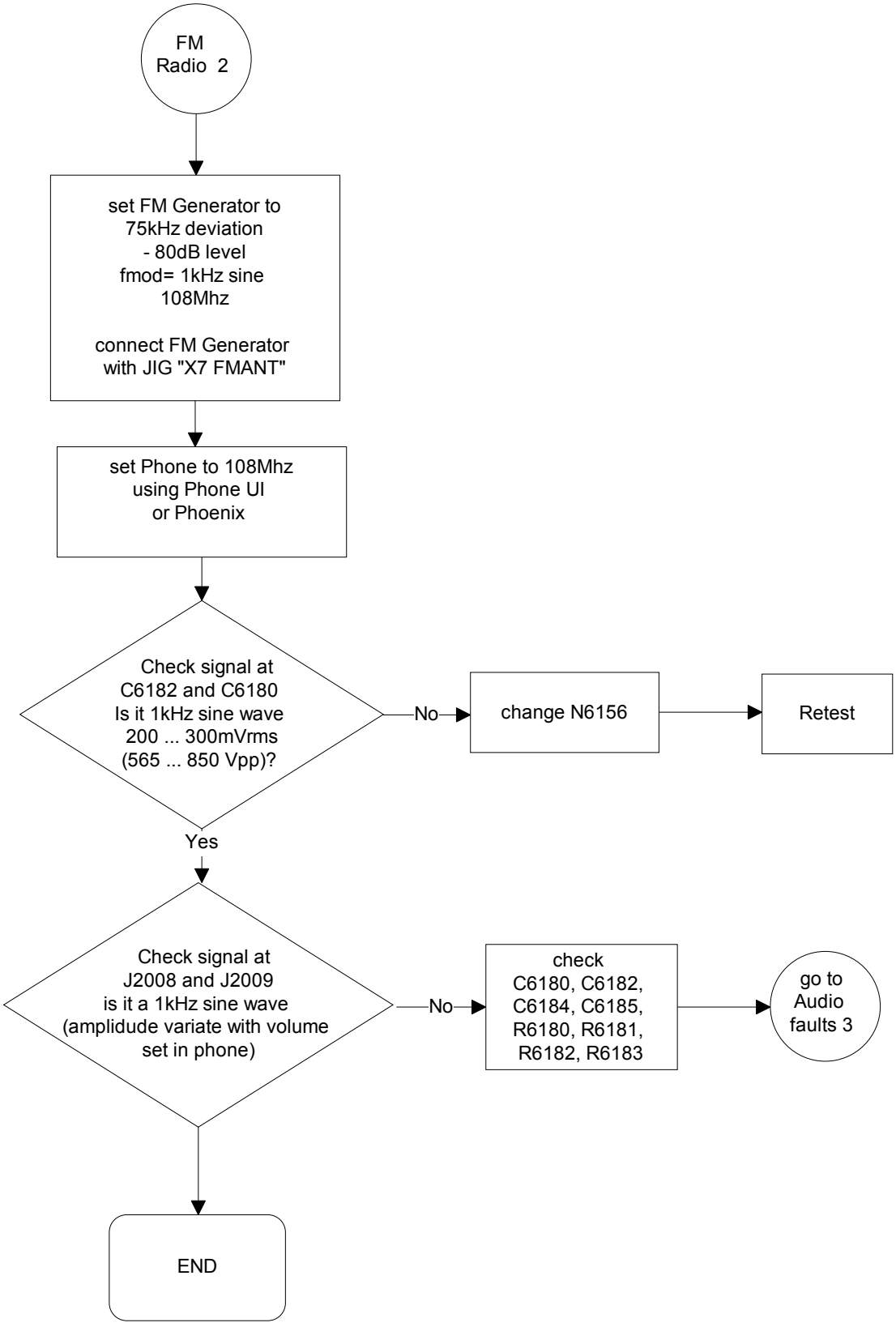
FM radio 2



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